Modernizing the Army:
Spiral Development Process

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16 September 1998

Geostrategic Environment has Changed…

1950 - 1989
40 Years & 10 Deployments

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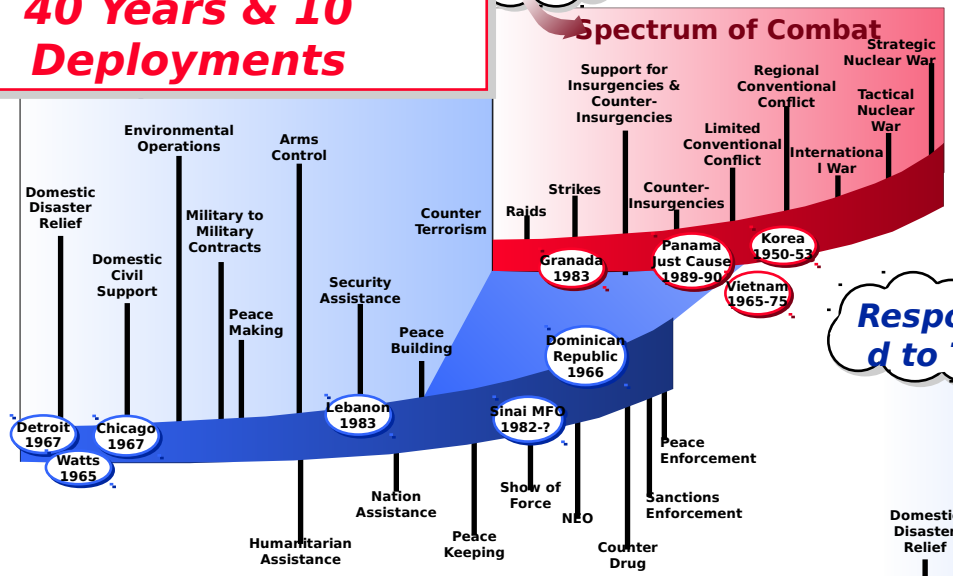

1989 - Current
9 Years & 29 Deployments

Responde
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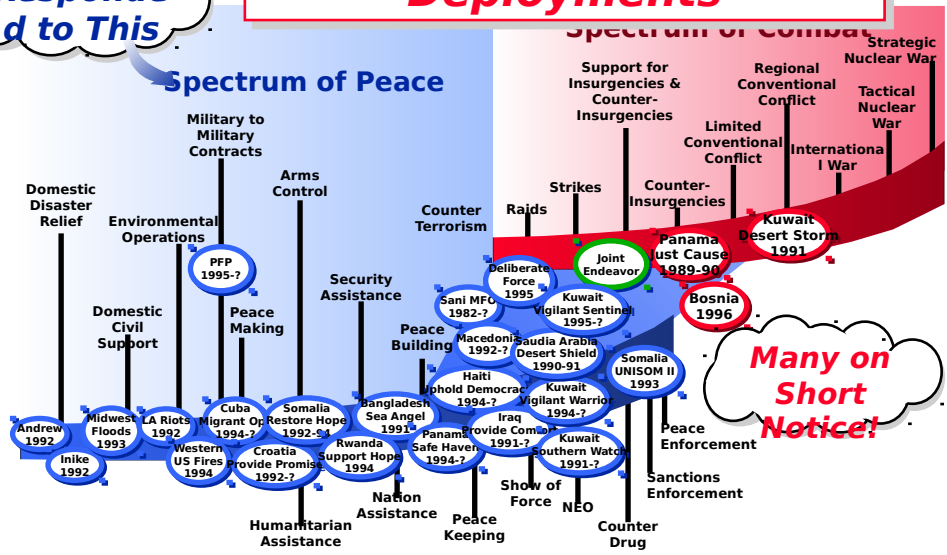

Many on Short Notice!

The Security Challenges of a Largely Bipolar World Have Been Replaced with More Ambiguous and, in Some Cases, Equally Dangerous Problems.

Soldiers Are Our Customers

Continuous Transformation is Needed

...to Remain Relevant in an Ever Changing Strategic Environment

Cold War Army

- Forward Deployed Strategy
- Very Focused Mission
- Threat-based
- Constrained Resources
- 20th Century Technology
- Longer Planning Horizon

Power Projection Army

- CONUS-based
- Power Projection Strategy
- Power Projection Capabilities
- Broad Range of Missions
- Severely Constrained Resources
- Shorter Planning Horizon

Army XXI

- Flexible Engagement Strategy
- 21st Century Technology
- Knowledge and Capabilities Based
- Split-based Operations
- Improved Lethality, Survivability, and Tempo
- Shared Situational Awareness
- Real

TODAY

The Army of 1989

Panama

Desert Storm

Somalia

The Army of 1998

Haiti

Bosnia

The Army of 2010... and beyond

The Army After Next

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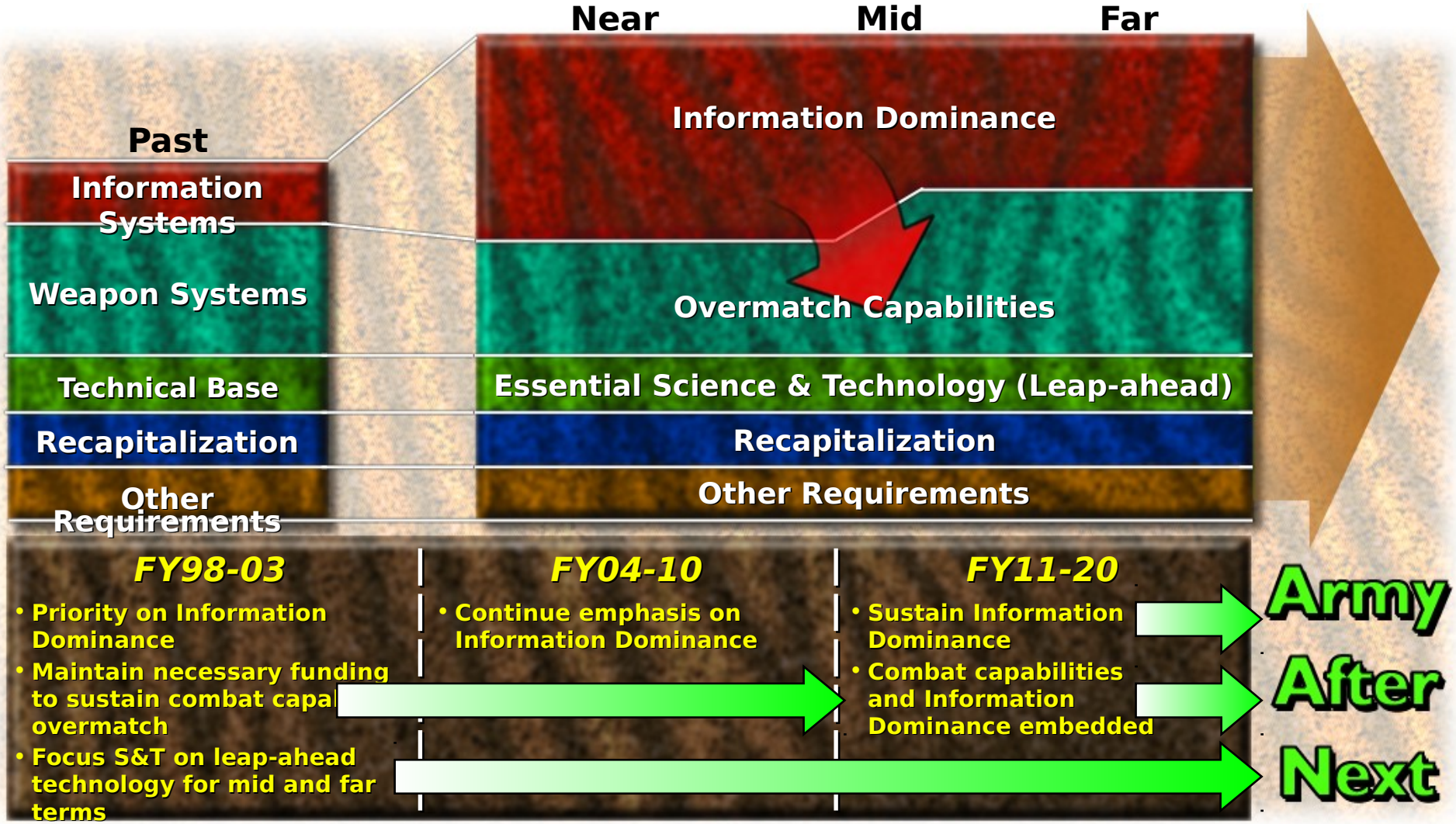
Modernization and Investment Strategy:
Priority on Information Dominance



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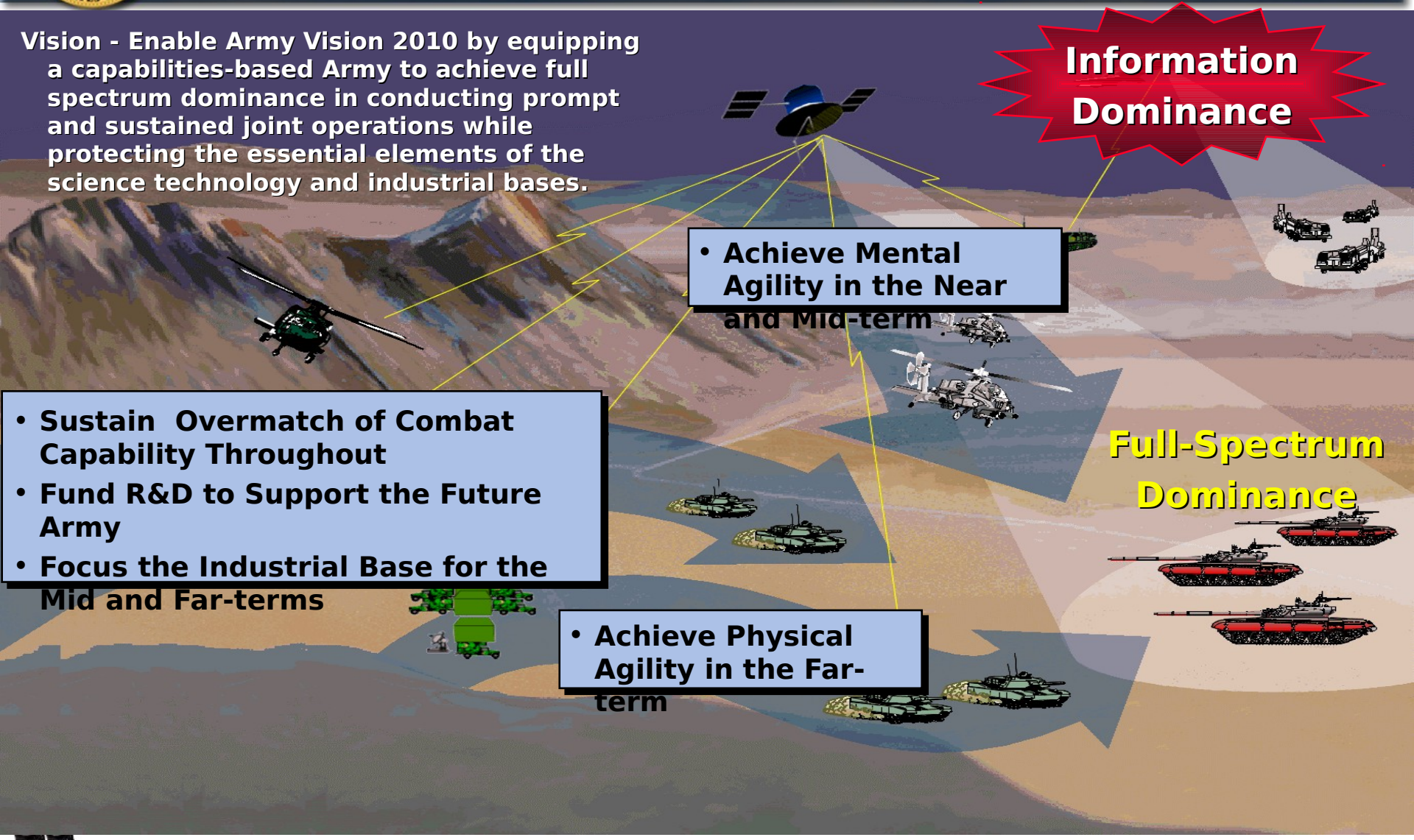
Modernization Vision

Vision - Enable Army Vision 2010 by equipping a capabilities-based Army to achieve full spectrum dominance in conducting prompt and sustained joint operations while protecting the essential elements of the science technology and industrial bases.

Information Dominance

- **Achieve Mental Agility in the Near and Mid-term**
- **Sustain Overmatch of Combat Capability Throughout**
- **Fund R&D to Support the Future Army**
- **Focus the Industrial Base for the Mid and Far-terms**
- **Achieve Physical Agility in the Far-term**

Full-Spectrum Dominance



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The Army's Dilemma...

Conduct Full Spectrum Operations

Achieve Swift Victory With Minimum Casualties

... the Strategic Balance - Requirements and Resources

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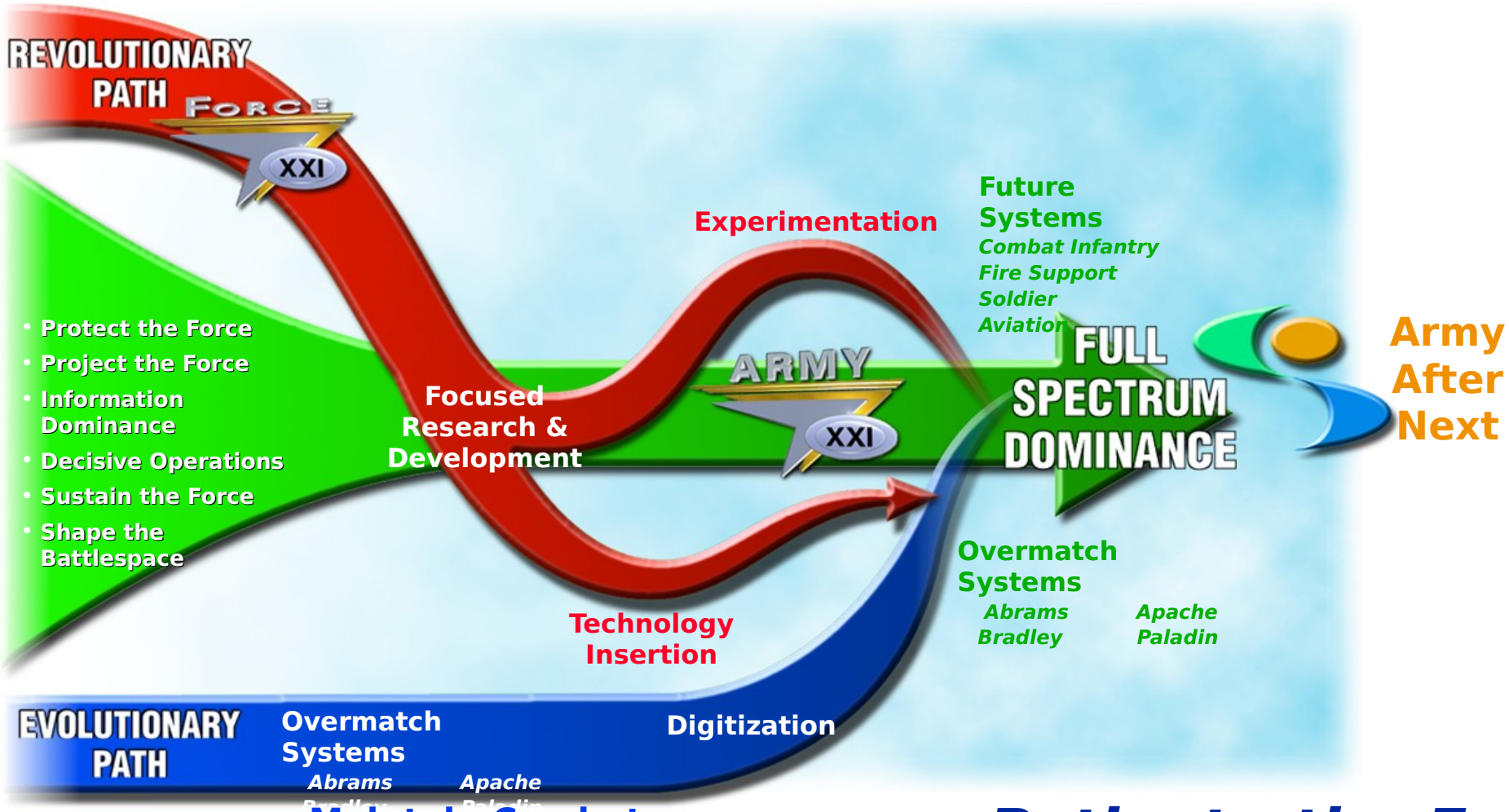
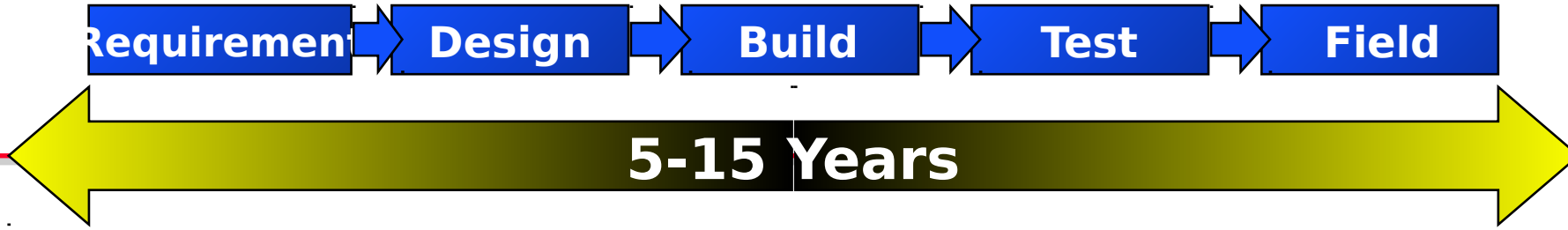
Spiral Development



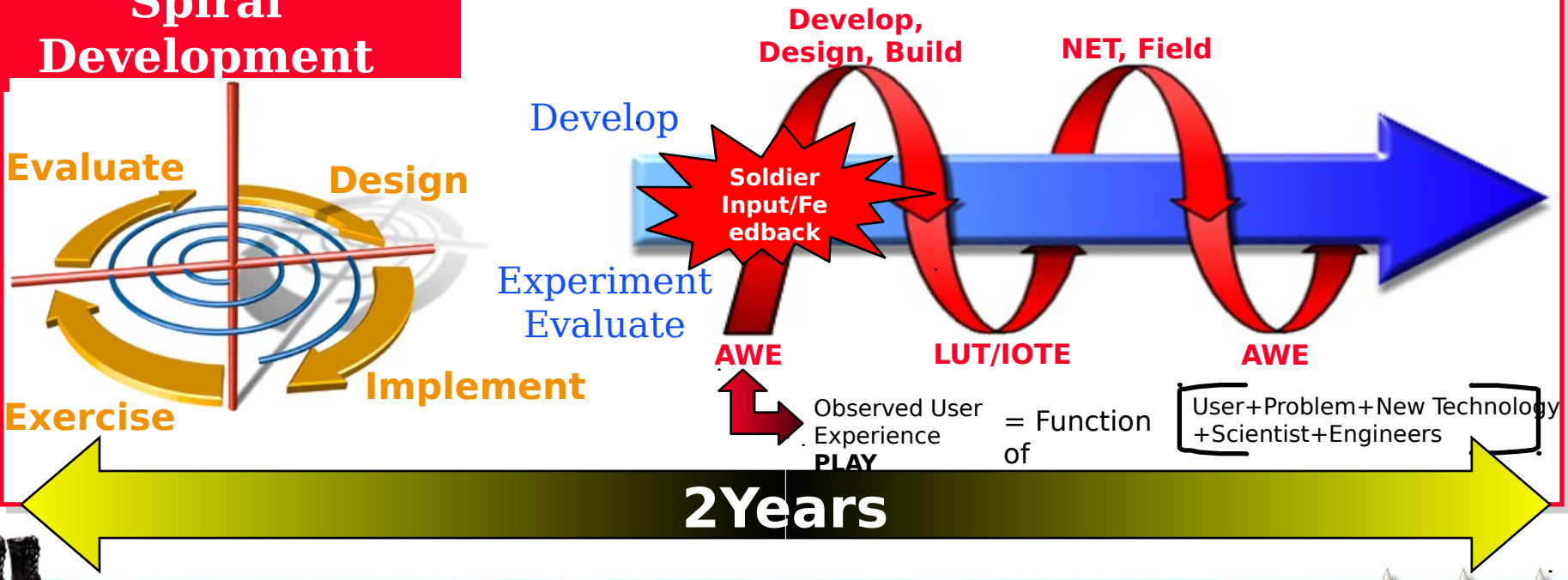
... Paths to the Fut

Where Does MANPRINT Fit?

Acquisition Cycle



Spiral Development

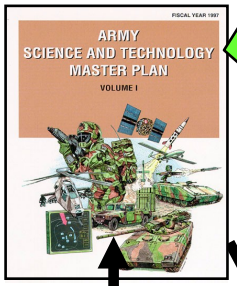


Army Digitization - Concept Development Process

Holistic requirements based on desired future capabilities - Joint and Army

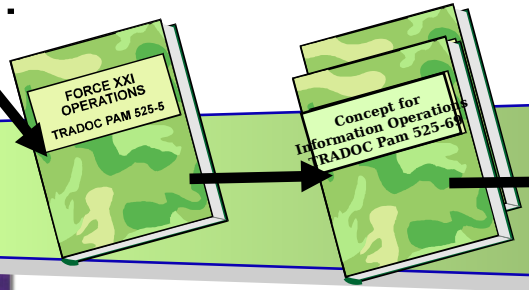
Vision

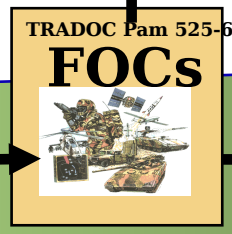
Spiral Development

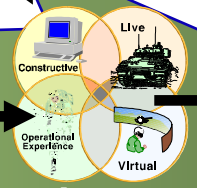


Concepts influenced by and in turn guide experimentation and S&T research

Requirements leading to solutions







Experimentation

INSIGHTS

- Doctrine
- Training
- Leader Development
- Organization
- Materiel
- Soldiers/People

MNS
ORD

Analysis

Overarching Concept

Operational, Functional, Branch Concepts

Future Operational Capabilities

Single capstone warfighting concept with more detailed, subordinate concepts

Warfighting experiments primary source of insights used by Army leaders to analyze and determine DTLOMS requirements

Cost considered during requirements determination as an independent variable

Ideas drive Experiments...Experiments produce insights into DTLOMS r

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Situational Awareness and C2 System of Systems

Leader Development

MANPRINT Critical to How Leaders Think

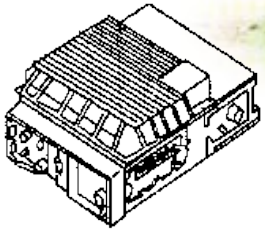
Computer Appliqué (v3)

Pos/Nav

PLGR GPS

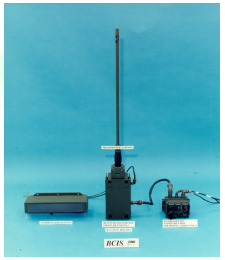
Communications

SINCGARS SIP/INC



EPLRS VHSIC

Friend or Foe ID



BCIS

SINCGARS: Single Channel Ground & Airborne Radio System
SIP: System Improvement Program
INC: Internet Controller
EPLRS VHSIC: Enhanced Position Locating and Reporting System
Very High Speed Integrated Circuit
PLGR: Precision Lightweight GPS Receiver
BCIS: Battlefield Combat Identification System

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Appliqué Spiral Development

- Brigade
- TF XXI

- Where am I?
- Where are my buddies?
- Where's the enemy?
- What's my plan?
- What's my status?…

Experimentation and Evaluation Results

Software

- Fielded Systems

Land Warrior

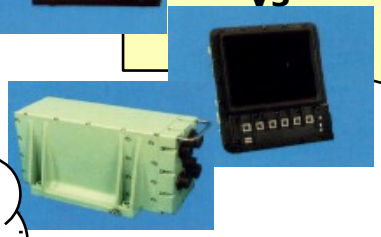
Embedded in selected weapon platforms (M1A2 SEP; M2A3…)

Appliqué fielded to non-embedded systems (M113, HMMWV…)

V1

V2

V3



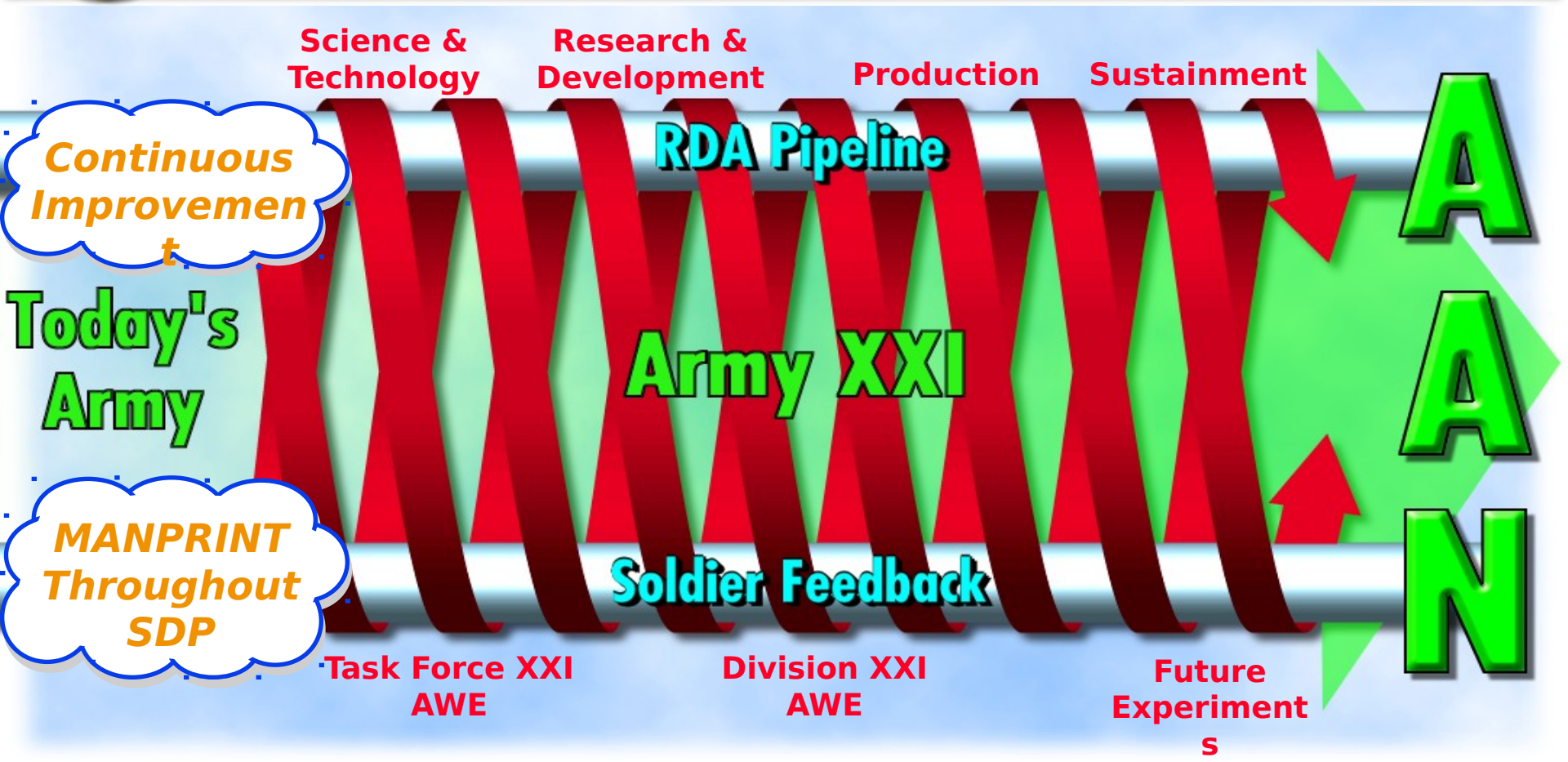
Software

Hardware/Software

Determines which version needed per platform type

Experiment With Surrogates - Field Systems Incorporating Lessons Learned

MANPRINT is …



… A Critical Part of the Spiral Development Process

1916-23